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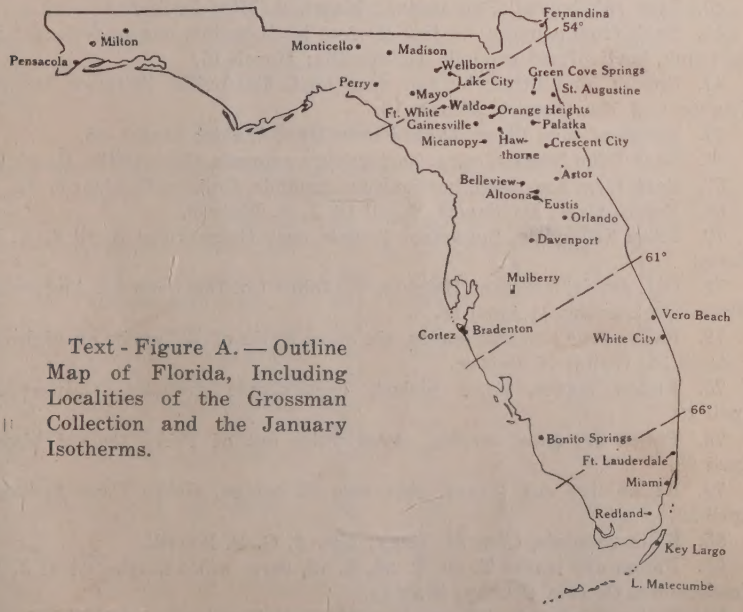
THE LARGE-WINGED MITES OF FLORIDA

ARTHUR PAUL JACOT
Appalachian Forest Experiment Station, N. C.

INTRODUCTION

The bulk of the material reported below forms part of the Grossman collection now the property of Dr. J. W. Wilson. These lots are designated by an initial G. Beyond what was said in the account of the Phthiracarid mites (11), I should say that the lot numbers are the same except that the latter half contains the number of the slide preceded by the letter G which designates this subfamily, Galumninae. Lot numbers including a B are from the Nathan Banks collection at the Museum of Comparative Zoölogy. Those including a W are in the J. W. Wilson collection



Text - Figure A. — Outline Map of Florida, Including Localities of the Grossman Collection and the January Isotherms.

(Florida). Since all the known genera and species of this group from the eastern United States are described and figured in detail in other papers (9, 12-14), only the new species are here described, with a key to the Florida species.

In addition to the Grossman collection lots published in the earlier paper (11, pp. 232-234) the following should be added:

2. Decayed oak stump (rather dense and fairly moist wood), horticulture grounds, Gainesville; Jan. 6.

3. Dry fallen leaves and trash (magnolia, live oak and grape), sunny rather dry spot, Gainesville; Jan. 16.

4. Spanish Moss (Dendropogon) from tree, four to eight feet from ground, Gainesville; Jan. 21.

12. Fallen orange leaves, sunny spot, Gainesville; Feb. 11.

24. Pine land litter (spruce, pine and longleaf), west edge of town, Falmouth; Feb.

31. Debris (including moss and leaves) on ocean and bay side, radius of about 100 yards, among cocoanut trees, Lower Matecumbe Key; taken Feb. 29th by George F. Weber.

32. Fallen pine and oak leaves, between Redland and Homestead; Feb. 29, Weber.

36. Under lichens on red cedar, seven miles from south point on North Beach, St. Augustine; March 7.

38. Bark from pecan tree, Monticello; Feb. 15, J. R. Watson.

39. Fallen live oak leaves, Orlando; March 11.

40. Live oak leaves, Fernandina; March 8, Miss Decker.

43. Bark from a magnolia tree 20 feet in diameter, one to five feet up the trunk, horticulture grounds, Gainesville; March 15.

47. Spruce pine litter, burned over land, Campville (between Orange Heights and Hawthorne), March 18.

49. Longleaf pine litter, burned over land, Waldo; March 18.

51. Bark from longleaf pine, horticulture grounds, Gainesville; March 24.

57. Bark from box-wood, horticulture grounds, Gainesville; March 27.

68. Potato vines, Davenport; April 12, J. R. Watson.

70. From Tillandsia, Sugarfoot Prairie near Gainesville; April 8, A. N. Tissot.

71. Oak debris, Vermont Heights, St. Johns Co. (between St. Augustine, Elkton and Hastings); April 15.

72. Fallen pine and oak leaves, six miles south of Belleview on highway 2; April 15, Walter H. Beisler.

73. Fallen leaves, hand picked, horticulture grounds, Gainesville; April 20.

78. Fallen dry pine needles, seven miles out of Perry toward Mayo; April 28.

79. Fallen live oak leaves, east side of bridge, Green Cove Springs; April 29.

85. Biota rosedale, Glen St. Mary; May 3, G. B. Merrill.

91. Fallen dry leaves T. 30, R. 33, S. 15, three miles northwest of J. H. Henderson's, Osceola County; May 11.

93. Fallen dry leaves, Miami; May 10, G. F. Weber.

94. Dry Andropogon, Astor; May 12, Erdman West.

97. Lily bulbs from Germany grown in Gainesville; April 27, J. R. Watson.

98. Gladioli, Gainesville; May 14, G. F. Weber.

102. Fallen rosemary leaves (*Ceratiola ericoides*), east of Altoona; May 17, E. West.

106. Palm roots, Washington Park; May 14, H. E. Bratley.

126. Oak debris, Fort White; July 18.

Lots without collector's name were taken by Edgar F. Grossman.

SYSTEMATIC ACCOUNT

Protokalumma depressum x pterotum

This natural hybrid has the pseudostigmatic organs of *P. pterotum* (12) but the organ head of *P. depressum* (12); the porose areas and insertions of the notogaster are very similar to those of *P. depressum*; the genital cover bristles are arranged as in *P. depressum*; the paramesal bristles, as in *P. depressum*, are absent; the anal area is that of *P. pterotum;* the three pairs of sternal bristles are subequally approximate. *P. depressum* thus seems to predominate.

The dimensions are included by those of northern individuals of *P. depressum*; the ratio of length to breadth is the same.

Material examined: Seven specimens from fallen leaves, horticultural grounds, Gainesville; taken April 21st 1928 by Grossman, slides G75G1, -G8. A female taken fifty yards west of the above locality on April 27th 1928 by H. E. Bratley, slide G84G1.

Parakalumma robustum (1, p. 7)

For description and figures see 9, p. 8, pls. 1-3.

Dimensions of Floridian individuals are presented in five columns in the following order: the smallest male, average of seven males, average of ten females, largest female, and a jumbo male, respectively.

Total length of body	780	818	862	895	920
L. of notogastral plate	665	687	710	748	780
Breadth of same	586	605	627	637	696
Length of pteromorphae	400	423	432	451	467
Interlamellar bristle span	105	109	106	112	123
Median 1. of vent. plate	595	629	667	697	714
Camerostome to gen. apert.	131	146	150	156	160
L. of genital aperture	82	87	93	100	90
Breadth of same	86	90	102	107	98
Gen. apert. to anal apert.	195	204	220	224	241
L. of anal aperture	150	166	176	189	200
Breadth of same	156	170	178	189	200

Thus in the male the interlamellar span is greater than in the female, while the genital aperture seems smaller (see figures of the jumbo indi-

vidual). Compared with measurements of New York and New Jersey specimens (9, p. 14), these Floridian specimens average larger, though the variation in size amply bridges the two groups.

Florida material examined: Seventeen specimens from fallen leaves of oak, magnolia, and hickory (no pine), one mile east of Villa Tasso on Choctawhatchee Bay, slides G101G1 to -G6. One specimen from fallen live oak and pine leaves, Wellborn, slide G115G1. Two individuals from fallen leaves in horticultural grounds, Gainesville, slides G75G4, -G5. Three males from dead leaves, San Felasco Hammock, Alachua Co.; taken March 7th 1929 by J. R. Watson, slides 29W3/7-1, -2. Four specimens from dead leaves from floor of Sugarfoot Hammock, Gainesville; taken June 23rd 1929 by Watson, slides 29W6/23-1, -2. Two females from spanish moss in dense hammock (Sugarfoot), Gainesville; taken July 13th 1929 by Watson, slides 29W7/13-1, -2. Two specimens from spanish moss rotting on ground, Sugarfoot Hammock; taken August 25th 1929 by Watson, slides 29W8/25-1, -2. An unusually large female (960 x 697 microns) along with a normal individual, from fallen elder leaves at White City, slides G108G3, -G4. Two specimens from fallen leaves in low hammock, Crystal River; taken January 29th 1929 by Watson, slide 29W1/29-1.

Distribution: Northern Connecticut south to Florida and west to Missouri. Type locality: Sea Cliff, Long Island, N. Y.

Habitat: Dead leaves and forest floor litter, local.

Eggs: The Florida specimens have a capacity of fourteen to twenty-three or twenty-four eggs.

Parakalumma robustum floridanum *subsp. nov.*

Figure 1

Diagnostic characters: Differs from the species in being much smaller (0.4 x 0.61 mm.); adalar porose areas elongate, oblique; lateral mesonotic porose areas much more posterior, equidistant from the mesal mesonotic and the posterior (figure 1); preanal bristles more approximate, much more approximate than diameter of anal covers (figure 1); anterior pair of anal cover bristles more remote, strikingly more remote than posterior pair; paramesal bristles more posterior and more approximate; mesal bristles of parasterna IV more distant from mesal ends of apodemata IV and more posteriad.

Material examined: A male from *Stereum subpileatum*, Sugarfoot Hammock, Gainesville; taken January 20th 1929 by Watson, slide 29W1/20-1. A male from longleaf pine litter, burned over land, Waldo, slide G49G1 (holotype). A male from fallen oak and pine leaves, six miles south of Belleview, slide G72G4 (paratype).

Zetes macroptera matecumbei *subsp. nov.*

Figures 2-4

Diagnostic characters: Pteromorphae smooth; lamellar bristles lateral; pseudostigmatic organs with broad, semioval, apiculate head and very slender pedicel (figures 2 to 4); notogaster with small, median porose area; anterior edge of genital covers with three bristles, fourth bristle apparently absent (figure 3); paramesial bristles nearly midway between the apertures; paranal bristles posterior to center of anal aperture (figure 3).

Description: Size medium (0.55 x 0.39 mm.); fairly high; shape ovate, with rather broadly rounded anterior end; cephaloprothorax bluntly conical; rostrum somewhat prominent (figures 2 and 3); rostral bristles rather short, inserted close to rim of camerostome, closely appressed, often not visible in dorsal aspect; lamellar bristles longer, fine, inserted some distance laterad of edge of lamellae (figure 2), directed ventromediad, broadly overlapping rostral bristles in dorso/ventral aspects; lamellae extending from interlamellar bristles (figure 2), the inner edge free from cephaloprothorax for some distance (see upper edge of figure 2 and broken line of nearer (right) lamella); interlamellar bristles fairly long, stout, directed anteromediad, inserted rather close to shadow of tectopedia I; tectopedia I produced to ventral plate (figure 2); anterior porose areas quite long, extending well over tectopedial shadow, fairly broad; pseudostigmatic organs with very slender pedicel and distinct, semi-oval, compressed head (see figure 2, over tectopedium I), terminated by a strongly developed apicule and studded with burrs (figure 4).

Notogaster with anterior edge distinct; pteromorphae with simple, wavy "veins," pseudofissurae large, distinct, groove slender, pseudoforamen distinct, the area on which it is located is bounded anteriorly by a strong ridge!; adalar porose areas indistinct, elongate, parallel with edge of pteromorphae, wider at anterior end; mesonotal porose areas fairly large, faint, angularly oval.

Ventral plate with anterolateral wings practically as broad as tectopedia II, the tectopedia are usually narrowly visible laterad of wings (figure 3); tectopedia III not clearly discernible, being absent or confused with femora; apodemata with rather long ceriphs, apodemata I short, strongly bent at distal end (figure 3), apodemata II-III also sharply bent distad of center; apodemata IV with distal end diverging from II-III; bristle mediad of apodemata II-III more anterior than usual in the genus; genital aperture with rather strongly diverging sides, anterior angle broadly curved; posterior edge quite sinuous, posterior area strengthened by a thickened band; anterior bristle is distinct on the anterior edge, very much resembling the two marginal bristles but more distantly spaced from them than they are from each other; second bristle posteriad of lateral anterior bristle, that is, nearer median than lateral edge, bristle 3 similarly situated relative to median edge, posterior bristle represented by channel only; paramesial bristles more approximate than sides of genital aperture, a little nearer genital than anal aperture; chitin plate beneath anterior edge of anal aperture ovate; anal aperture with thickened band about anterior edge and sides, sides strongly converging, anterior corner very much lost, posterior edge quite flat, making a rather sharp posterior corner; pseudofissurae very much reduced; paranal bristles quite close to posterior corner; postanal

bristles closer to each other than the median pair are to each other; cover bristles equally distant from median edge, more approximate than median postanal bristles.

These specimens agree with the one mutilated type specimen sent to me by Dr. H. E. Ewing in all except the pseudostigmatic organs which were lost in the type (of the species). The original description (6, p. 120), characterizes them as "subfusiform, recurved, pectinate." Thus they are strikingly distinct from those of the Matecumbe specimens.

The species is distinct from all other Zetes known to me by its unique adalar porose areas, unusual genital cover armature, paranal pseudofissurae and lateral lamellar bristles. It is the only Floridian Zetes with long interlamellar bristles and smooth pteromorphae now known.

Dimensions: The smallest male, average of four females and largest female are presented. In the fourth column is given the measurements of the next species.

Total length of body	502	570	580	777
Length of notogastral plate	391	454	473	664
Breadth of same	358	426	434	613
Length of pteromorphae	298	323	334	431
Interlamellar bristle span	90	111	119	175
L. of ventral plate (median)	374	415	435	587
Camerostome to genital apert.	85	93	94	102
Length of genital aperture	61	76	82	98.5
Breadth of same	74	82	85	117
Genit. apert. to anal apert.	111	130	135	213
Length of anal aperture	98	112	115	149
Breadth of same	103	124	129	186

Eggs: One female bears eight eggs.

Material examined: Eight specimens from debris, moss, and leaves from radius of about 100 yards, among cocoanut trees, on ocean and bay side of Lower Matecumbe Key; taken February 29th 1928 by George F. Weber, slides G31G4 (figured), -G2, -G3, -G5 (*cotypes*). Five specimens from fallen leaves, Key Largo; taken May 10th 1928 by Weber, slides G92G1 to -G3.

Zetes elegantulus *sp. nov.*

Figures 5, 6

Diagnostic characters: Rather large (0.77 x 0.6 mm.); pseudostigmatic organs with long slender pedicel and short, broader, elegantly curved head, the distal point practically lacking (figure 6); median rim of lamellae elegantly concave (figure 5); lamellar bristles somewhat lateral.

Description: Cephaloprothorax (figure 5) broad, short; rostrum barely demarked, broad, blunt; rostral bristles curved close to rostrum, finely barbed, rarely visible in lateral aspect; lamellar bristles fine, rather short,

practically smooth, inserted on lateral face of lamellae, strongly recurved at base to pass close in front of frons (figure 5); tectopedia I bulging in lateral aspect but with smoothly rounded edges; interlamellar bristles fine, rather short (shorter than lamellar); midthoracic suture distinct but faint, straight to slightly curved posteriad in middle, anterior porose areas elongate.

Pteromorphae with well developed pivot, pseudoforamen faint, groove rapidly becoming broad, veining poorly developed; notogaster broadly rounded behind, both sexes with a slight swelling at posterior end, extending a short distance along median line; adalar porose areas similar to those of *Zetes emarginatus* (broadly cuneiform); median pseudoforamen fairly large; mesal porose areas elongate oval.

Ventral plate wings developed on two planes, the lower being very slender, leaving a large part of tectopedia II uncovered (figure 5); edge of leg cupboards sclerotized so as to form a peripheral band (as in *Zetes niger*); parasterna much as in *Zetes macroptera* but apodemata not angularly bent, undulate; bristle mesad of apodemata II-III more distant from genital aperture; genital covers as in *Z. macroptera* but bristles 2 more distant from anterior edge; paramesal bristles midway between apertures; anal covers similar to those of *Z. macroptera* but anterior bristle nearer anterior edge; lateral postanal bristles more approximate.

The swelling on posterior end of notogaster recalls the genus Centroribates (2, p. 122) but is not well enough developed to warrant its segregation from Zetes.

Dimensions: See table under the preceding species (fourth column).

Material examined: A female (bearing sixteen eggs) and a male from fallen leaves and grass, old Bradenton Laboratory, Bradenton; taken March 14th 1928 by George F. Weber, slides G44G11 (figured), -G9 (cotypes). Five specimens from Paradise Key; taken February 27th 1919 by Alexander Wetmore, slide 3080. A female from Dunedin; taken winter of 1918-1919 by W. S. Blatchley, slide 32850l.

Zetes bradleyi *sp. nov.*

Diagnostic characters: Size about 0.5 mm. long; cephaloprothorax conical; cephaloprothoracic bristles well developed, barbed, lamellar lateral; pseudostigmatic organs straight, head slender, pointed, densely barbed; anterior porose areas elongate oval; mandible retractor scars medium sized, linearly arranged; midthoracic suture not strong; pteromorphae entirely covered by low, fine, granules giving it a stippled appearance, groove slender, distinct, ribs not long, pseudofissura distinct, fairly long, insertion near groove; adalar porose areas oval, long axis at right angles to pteromorphae, well separated from pteromorphal hinge line; mesonotal porose areas oval, smaller than adalar, one somewhat behind the other; ventral plate wings broad, almost entirely covering tectopedia II; genital cover bristles 1 not on anterior margin, bristles 2 and 3 distant from each other; paramesal bristles midway between apertures; pseudofissurae short at center of aperture; paranal bristles near posterior corners of aperture;

lateral postanal bristles distant from corners of aperture; anterior cover bristles near anterior edge of cover.

Holotype: from leaf mould, Anclote River, at Elfers (eight miles north of Tarpon Springs); taken December 30th 1932 by Dr. J. Chester Bradley, one specimen, slide 32115o1.

Zetes emarginatus (1, p. 7)
(14, p. 72, pl. 9. figs. 24-33)

Florida material examined: Two specimens from pine and oak litter, level, low land, three miles northwest of Milton; taken March 29th 1928 by G. H. Blackmon, slides G62G8, -G9. Three specimens, true moss, Sugarfoot Hammock, Gainesville; taken June 10th 1928 by J. R. Watson, slides G109G1 to -G3. One specimen from lichens on oak trunk, Sugarfoot Hammock; taken September 8th 1929 by Watson, slide 29W9/8-1. Three specimens from *Daedalia ambigua* on rotten log, Worthington Springs; taken January 13th 1929 by Watson, slide 29W1/13-1, -2. Two specimens from leaf mould, Anclote River at Elfers (eight miles north of Tarpon Springs); taken December 30th 1932 by J. Chester Bradley, slide 32115o1.

Distribution: Maine and Ottawa west to Illinois and Missouri and south through New England and Long Island to Florida.

Habitat: Primarily soft, moist, decaying wood (see 14, pp. 77-82).

Zetes emarginatus laevis *subsp. nov.*

Diagnostic characters: As the species but pseudostigmatic organs held somewhat erect, head bilaterally symmetrical, bristly; pteromorphae smooth; color tan.

Material examined: One specimen from spruce-pine litter of burned over land, Campville; taken March 18th 1928 by E. F. Grossman, slide G47G1 (*holotype*). One specimen from shore litter, twelve miles from south point on shore of North Beach, St. Augustine; taken April 1st 1928 by Grossman, slide G63G1 (paratype).

Zetes elimatus louisianae (9, p. 28)
Figures 7, 8

Diagnostic characters: Animal more dense, more opaque; cephaloprothorax much shorter and steeper, rounded (figure 7), often with pale greenish-yellow color (by transmitted light); lamellae projecting conspicuously laterad, actually as a flange beyond sides of cephaloprothorax (note broken line in figure 7, upper half); lamellar bristles surpassing insertion of rostral; interlamellar bristles more remote, the insertions barely discernible over edge of tectopedial shadow; pseudostigmatic organ head slender, pointed, with short barbules (figure 8); adalar porose areas more slender, the lateral end turned posteriad to form an L (without ceriphs) (figure 7);

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J. R. WATSON.....Editor
E. W. BERGER.....*Associate Editor*
H. E. BRATLEY.....*Business Manager*

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tectopedia II posterior to wing (in the species they extend well up side of wing and are therefore much wider); lateral edge of ventral plate broadly thickened (as in *Zetes niger*); genital cover bristles 1 far from marginal and behind the lateral one (in the species they are near marginal or nearly along side); genital cover bristles 3 more lateral and closer to bristles 4; apodemata IV with shorter ceriph; anal pseudofissurae tend to be very much reduced, often represented by a pseudoforamen; paranal bristles on transverse plane anterior to or passing through pseudofissura.

Differs from *Zetes elimatus ithacensis* (14, p. 53, pl. 7, figs. 1-5) in being slightly larger; much more opaque, often with pale, colorless vertex; more blunt and shorter cephaloprothorax; much longer lamellar bristles which far surpass insertion of rostral (in dorsal aspect); almost indiscernible interlamellar bristle insertions.

Material examined: Two specimens from *Stereum hirsutum* on rotten limb, Sugarfoot Hammock, Gainesville; taken September 8th 1929 by J. R. Watson, slide 29W9/8. One specimen from rotten bark with *Ozonium aureum*, Sugarfoot Hammock; taken January 20th 1929 by Watson, slide 29W1/20. One specimen from spanish moss, rotting on ground, Sugarfoot Hammock, taken August 25th 1929 by Watson, slide 29W8/25-1. A female from fallen leaves about azalea bushes, shady place, apiary grounds, Gainesville, slide G6G2. One specimen from fallen oak leaves, upper edge of Devil's Mill Hopper, Gainesville, slide G76G1. Three specimens from lily bulbs from Germany grown in Gainesville, slide G97G1. One specimen from fallen leaves, horticultural grounds, Gainesville, slide G75G6. One specimen from fallen long-leaf pine needles, east shore of Newnan's Lake, Gainesville, slide G54G5. Two specimens from same niche but south shore, slides G55G6, -G7. Two specimens from oak woods litter, one mile west on state road from Green Cove Springs, slides G8OG1, -G3. A male from palmetto and oak

scrub, North Beach, St. Augustine, slide G21G1. Four specimens from dry grass (Andropogon), Astor, slides G94G3, -G4. Twenty-one specimens from fallen leaves and grass, old Bradenton Laboratory, Bradenton, slides G44G5 to -G7, -G9, -G11, -G15, -G16, -G18 to -G20. Seven specimens from same niche and locality, slides G87G1 to -G3, -G9. Eight specimens from shore bay debris, Vero Beach, slides G67G3, -G11 to -G14, -G17, -G18, -G21. Thirteen specimens from fallen elder leaves, White City, slides G108G1 to -G3, -G5, -G6. Three specimens from leaf litter, Bonita Springs, slides G95G1. One specimen from dry leaves, Royal Palm Park; taken March 1930 by Watson, slide 30W3.

Thus found throughout peninsular Florida, and probably occurring also west to Louisiana, its type locality.

Zetes weberi *sp. nov.*

Figures 10-12

Diagnostic characters: Pteromorphae unsculptured; a large median pseudoforamen, or rather, a small porose area; lamellar bristles frontal (figure 10); interlamellar bristles short; pseudostigmatic organs with rounded distal end (figures 10-12); anterior porose areas somewhat triangular, adalar somewhat crescentic, mesonotal elongate (figures 10, 12); ceriph of apodemata IV shorter than shaft; bristles 1 and 4 of genital covers on edge of covers, represented by a channel (figure 10); paranal bristles at posterior third of sides of aperture.

Description: Size medium (0.6 x 0.4 mm.); shape ovate, not broad, fairly high; cephaloprothorax conical, rostrum not prominent, edge of camerostome flaring laterad (figure 12); lamellae somewhat projecting, their outline smooth; rostral bristles inserted below bulge of rostrum, short, distal ends far from each other, usually not visible from above (figures 10, 12); lamellar bristles longer, directed downward, frontal, inserted some distance from lamellae and rather far down on sides, more or less supplanting the rostral in their original position (figure 12); interlamellar bristles quite short though not as short as in *Zetes elimatus*, inserted some distance from shadow of tectopedia I; pseudostigmatic organs fairly long, straight, head much shorter than pedicel, slender, cylindric to clavate, distal end rounded, in dorsal aspect usually seen foreshortened, decurrent on pedicel, strongly barbed, the barbs arranged in longitudinal rows (figure 11).

Notogaster with anterior end distinct; pteromorphae thin, veining simple, undulate, groove slender, insertion distinct, pseudofissura strongly developed (figure 10), pivot near angle; adalar porose areas seem rather short from above (figures 10, 12); mesonotal elongate, the mesal one varying in shape, usually with long axis at right angles to median plane, the lateral one subparallel to median plane, quite elongate; some of the usual insertions seem absent.

Ventral plate wings nearly covering over tectopedia II which project as a narrow sector chiefly laterad of wings (figure 10); tectopedia III short, posterior corner obliquely cut off; apodemata well developed, with well-

developed ceriphs, apodemata IV distant from II-III and parallel to them; bristle of parasterna III was not certainly located though it seems to be present; lacunae distinct, of parasterna II divided to form several (figure 10); gular bristles fairly approximate; genital aperture with sides but slightly converging, anterior edge smoothly arched though rather straight, posterior edge strongly undulate, cover bristles 1 on anterior margin, bristles 2 and 3 not unusually distant from each other, bristles 3 slightly more remote than 2; bristles 3 being equidistant from lateral and median edges; paramesal bristles at least as near aperture as narrowest diameter of a genital cover; subanal muscle plate indefinite but with anterior end the narrower; anal aperture surrounded anteriorly and at sides by a thickened band, sides strongly converging, anterior edge short with strongly rounded corners, posterior edge strongly arched; pseudofissurae very short, almost reduced to pseudoforamina; paranal insertions posterolaterad of pseudofissurae and at least their length from it; anterior cover bristles close to anterior edge of cover, posterior bristles more remote than anterior bristles; postanal bristles of one side closer to each other than the mesal ones are to each other; mesal bristles more remote than posterior cover bristles.

This species is more specialized than the preceding because the lamellar bristles have migrated away from the lamellae toward the primitive rostral position, and genital cover bristles have become peripheral.

Dimensions: The smallest male, average of six males, average of four females, and the largest female are presented.

Total length of body	535	572	582	610
L. of notogastral plate	436	442	474	510
Breadth of same	408	425	428	459
Length of pteromorphae	301	316	323	340
Interlamellar bristle span	84	91	99	107
Median 1. of ventral plate	400	427	433	459
Camerostome to genital apert.	98	102	102	106
Length of genital aperture	65	67	73	82
Breadth of same	75	79	83	94
Genit. apert. to anal apert.	111	119	116	123
Length of anal aperture	87	100	99	111
Breadth of same	107	117	117	131

Eggs: The number of eggs found ranged from four to seven.

Material examined: A male from fallen leaves about azalea bushes, shady place, apiary grounds, Gainesville, slide G6G1. Fifteen specimens from fallen live oak leaves, Gainesville, slides G116G3, -G4, -G13 to -G17, -G21. One specimen from true moss, Sugarfoot Hammock, Gainesville, slide G109G2. Nineteen specimens from fallen long-leaf pine needles, east shore of Newnan's Lake, Gainesville, slides G54G2 to -G4, -G6 to -G15. Five specimens from same but south shore, slides G55G1 to -G5. Five specimens from fallen live oak and pine leaves, Wellborn, slides

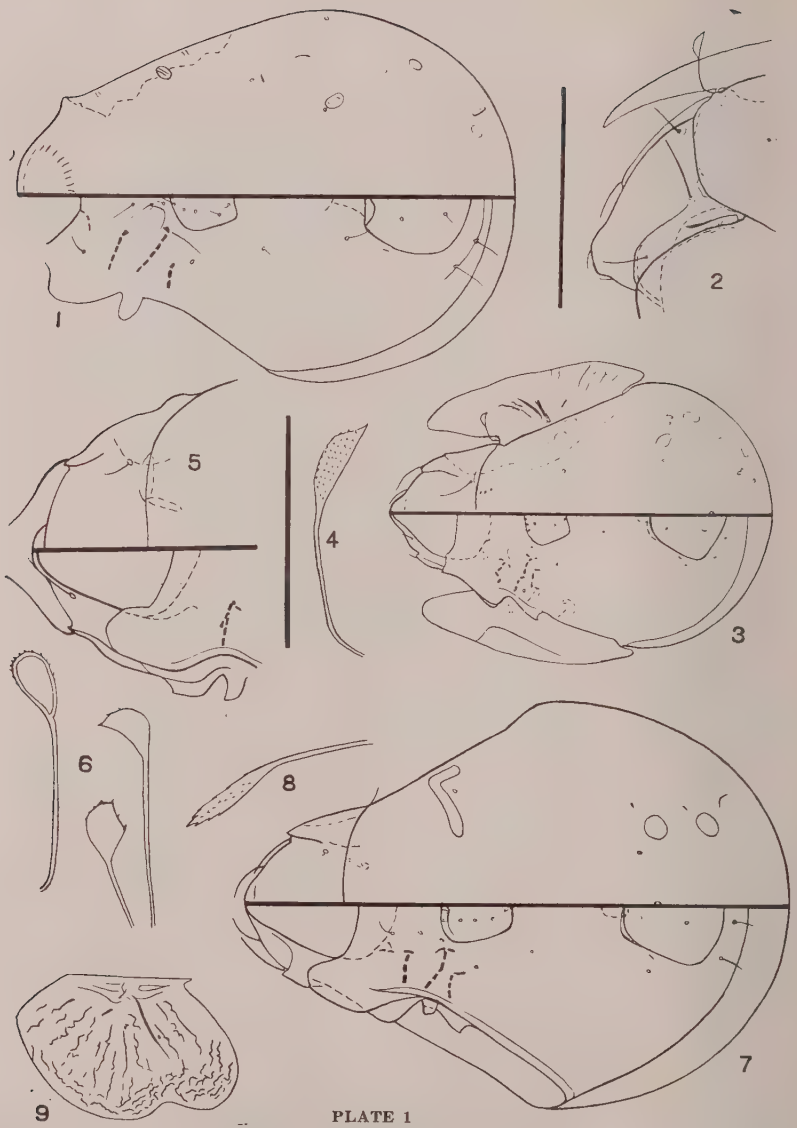

PLATE 1

Parakalumma robustum floridanum *subsp. nov.*

Fig. 1. Dorso/ventral aspects of abdomen and metathorax, legs omitted; ratio x120.*

Zetes macroptera matecumbei *subsp. nov.*

Fig. 2. Dorsolateral aspect of cephaloprothorax, showing a pseudostigmatic organ edge up; ratio x120.

Fig. 3. Dorso/ventral aspects, mouth parts and legs omitted; ratio x100.

Fig. 4. Pseudostigmatic organ; ratio x400.

Zetes elegantulus *sp. nov.*

Fig. 5. Dorso/ventral aspects of cephalothorax, mouth parts and legs omitted; ratio x120.

Fig. 6. Pseudostigmatic organs, various aspects; ratio x440.

Zetes elimatus louisianae (9)

Fig. 7. Dorso/ventral aspects, legs and mouth parts omitted; ratio x100.

Fig. 8. Pseudostigmatic organ; ratio x440.

Zetes weberi plumalae *subsp. nov.*

Fig. 9. Pteromorphae, showing sculpturing; ratio x100.

*These enlargement figures are ratios of enlargements. Actual enlargement figures have been found to be of no practical value while relative sizes of the figures are of direct comparative value. Actual sizes are given under each species.

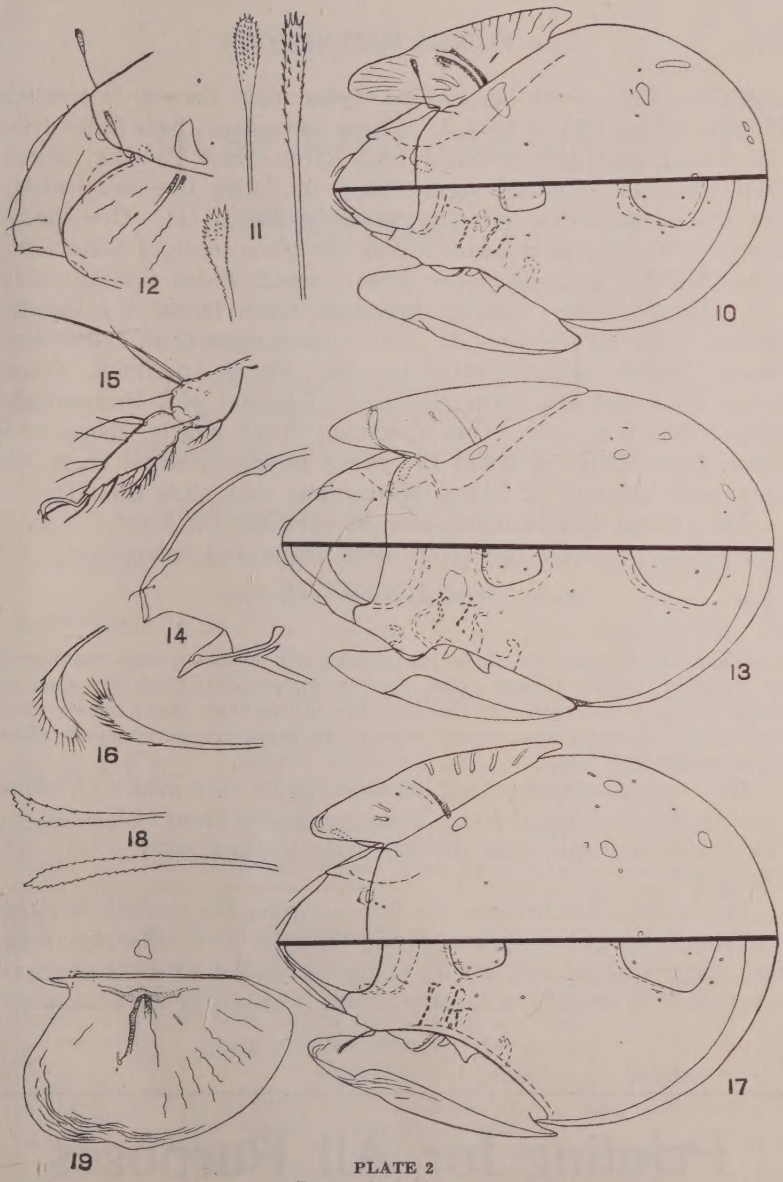

PLATE 2

Zetes weberi *sp. nov.*

Fig. 10. Dorso/ventral aspects, mouth parts and legs omitted; ratio x100.
Fig. 11. Pseudostigmatic organs; figure above numeral is foreshortened; figure to left of numeral is foreshortened and somewhat twisted; ratio x440.
Fig. 12. Lateral aspect of cephaloprothorax showing a pteromorpha and an interlamellar bristle above further outline of cephaloprothorax; ratio x100.

Zetes minutus (6, p. 121)

Fig. 13. Dorso/ventral aspects, mouth parts and legs omitted; ratio x200.
Fig. 14. Section of cephaloprothorax, showing juncture with notogaster, mandible elevator attachment plate, and labium; ratio x200.
Fig. 15. Tarsus and tibia I; ratio x330.
Fig. 16. Pseudostigmatic organ; ratio x440.

Zetes banksi (9, p. 27)

Fig. 17. Dorso/ventral aspects, mouth parts and legs omitted; ratio x100.
Fig. 18. Pseudostigmatic organs; ratio x440.
Fig. 19. Pteromorpha; ratio x100.

G115G3, -G5. Four specimens from oak debris, Vermont Heights, slides G71G1 to -G4. Three specimens from fallen live oak leaves, east side of St. John's River, East Palatka, slides G69G1 to -G3. Fifteen specimens from fallen live oak leaves, one mile north of Crescent City, slides G28G1 to -G4. One specimen from fallen oak and pine leaves, six miles south of Belleview, slide G72G1. Six specimens from Cortez, slides G45G1, -G2, -G4, -G6 (*cotypes*). Eight specimens from fallen dry leaves, Miami, slides G93G1 to -G3. Three specimens from fallen dry leaves, Miami, slides G93G1 to -G3. Three specimens from fallen pine and oak leaves, between Redland and Homestead, slides G32G1 to -G3. One specimen from debris, moss and leaves from radius of about 100 yards among cocoanut trees, on ocean and bay side of Lower Matecumbe Key, slide G31G1.

Thus found only in Peninsular Florida and the Keys.

Habitat: Chiefly the drier litter (pine and oak).

Zetes weberi plumalae *subsp. nov.*

Figure 9

Diagnostic characters: Like the species but pteromorphae roughened by irregular, netlike ridges, which, seen in dorsoventral view, are seen to stand out from the surface as fine lamellae, higher than broad, thus giving the surface a rugged appearance (figure 9); pseudostigmatic organs flattened on one side.

Material examined: One specimen from dry grass (Andropogon), Astor, slide G94G1. Four specimens from fallen water-oak leaves, one mile east of Mulberry, slides G103G1, -G4, -G5 (*cotypes*).

This subspecies bridges the gap between the smooth winged and rough winged species, showing that this type of sculpturing may occur without necessarily being correlated with other characters. It is therefore illusory to use it as a generic character.

(To be continued)

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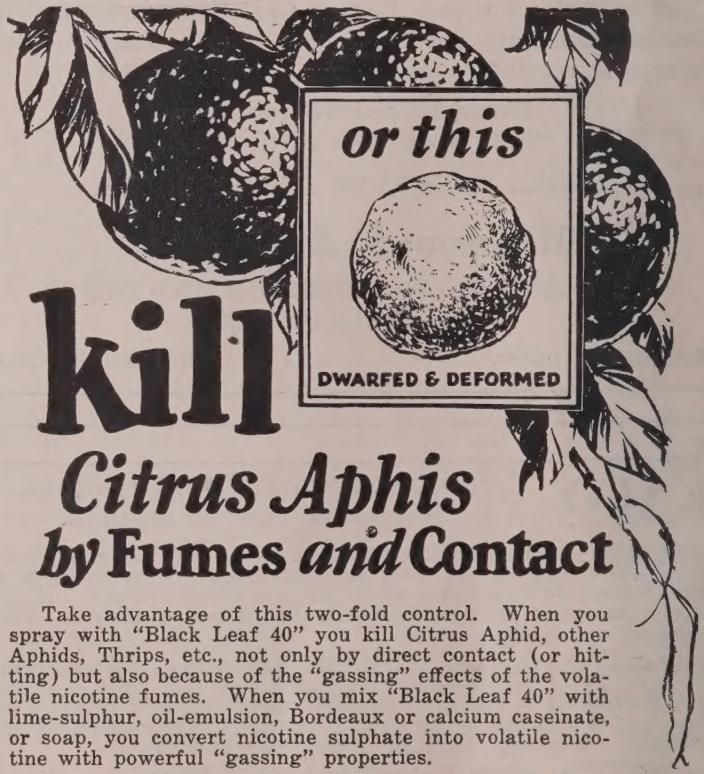

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